

Hawai'i Powered



# Increasing Customer DER in Hawaii

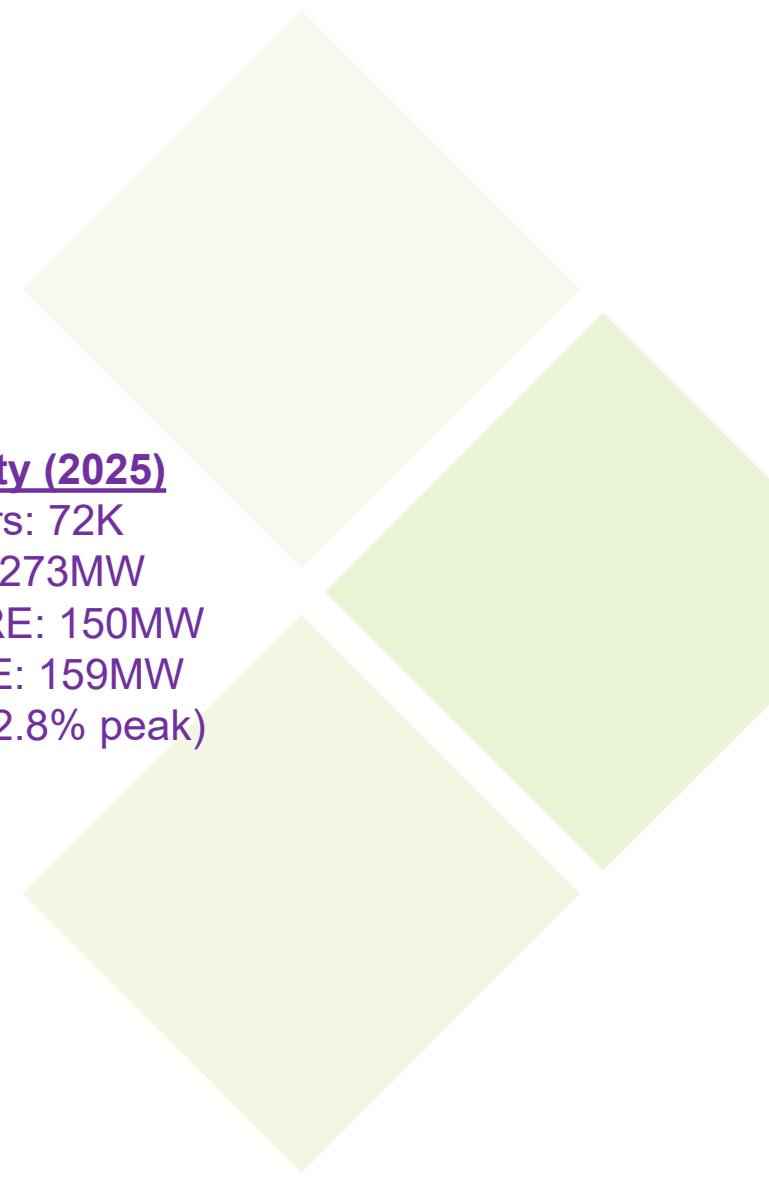
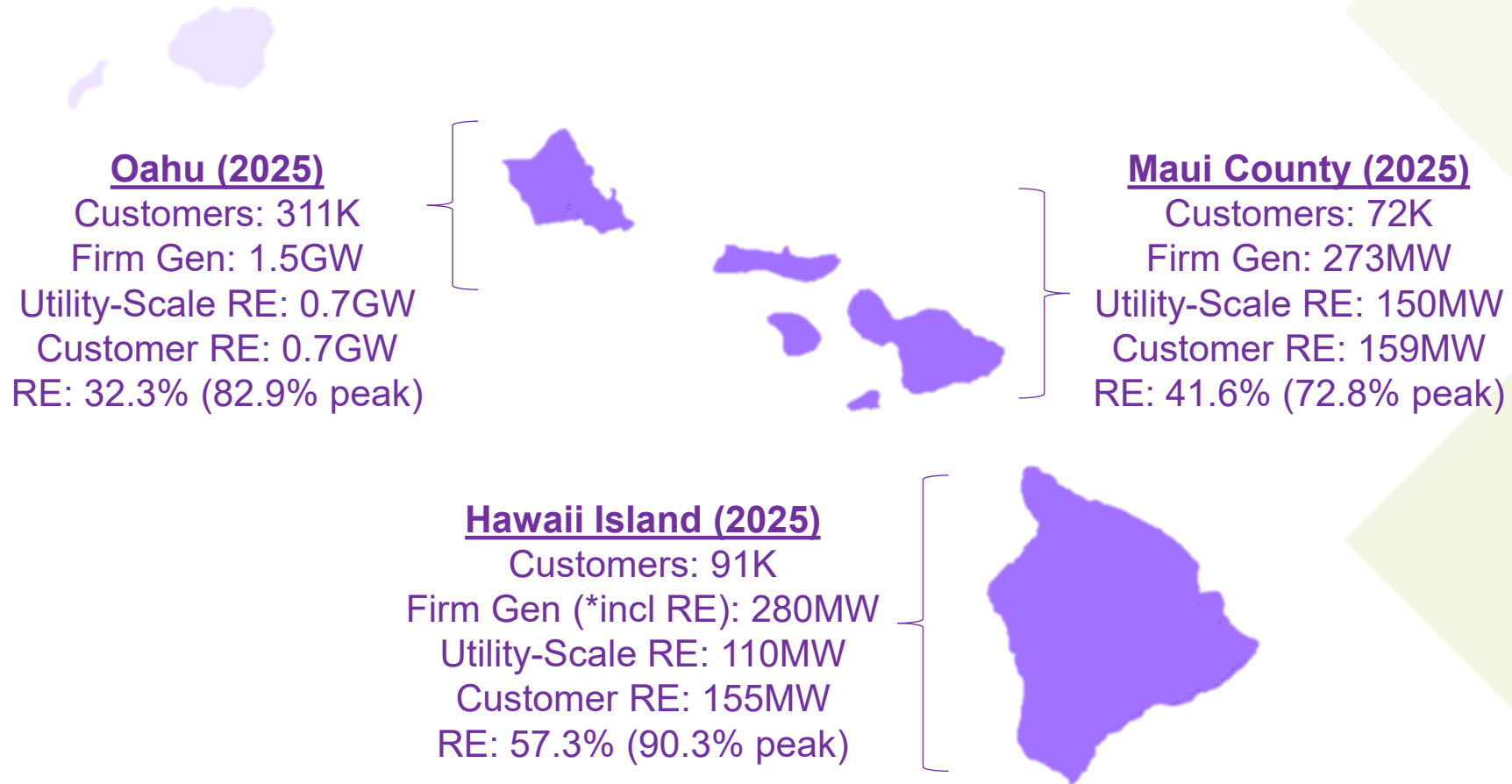
---

Ken Aramaki, PE  
Director, Integrated Grid Planning



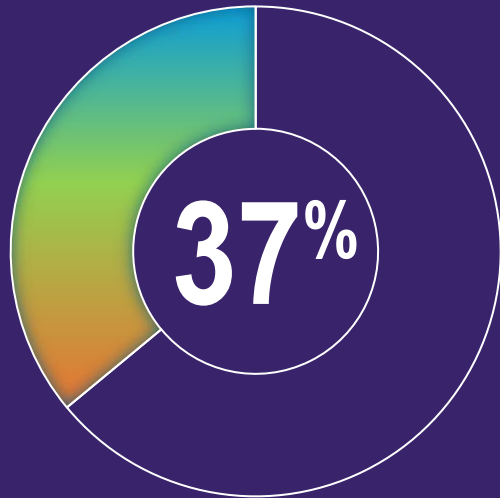
Hawaiian  
Electric

# Hawaiian Electric's System

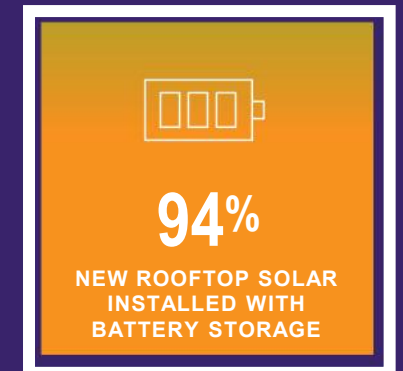
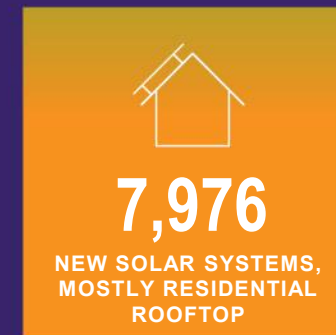
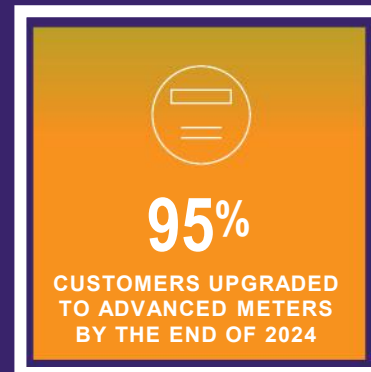
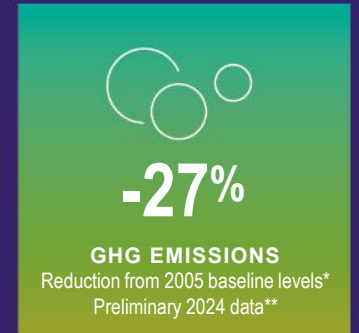
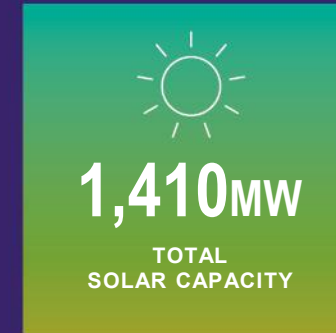
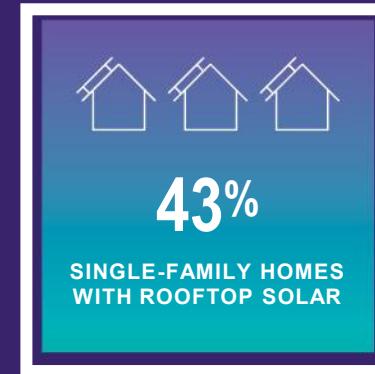
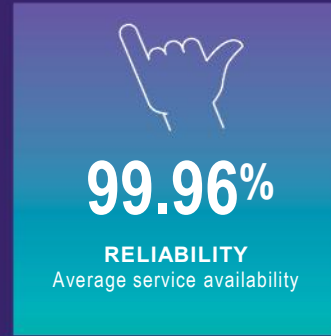


# At a Glance

We're on track to meet our year-end 2030 goal of 40%

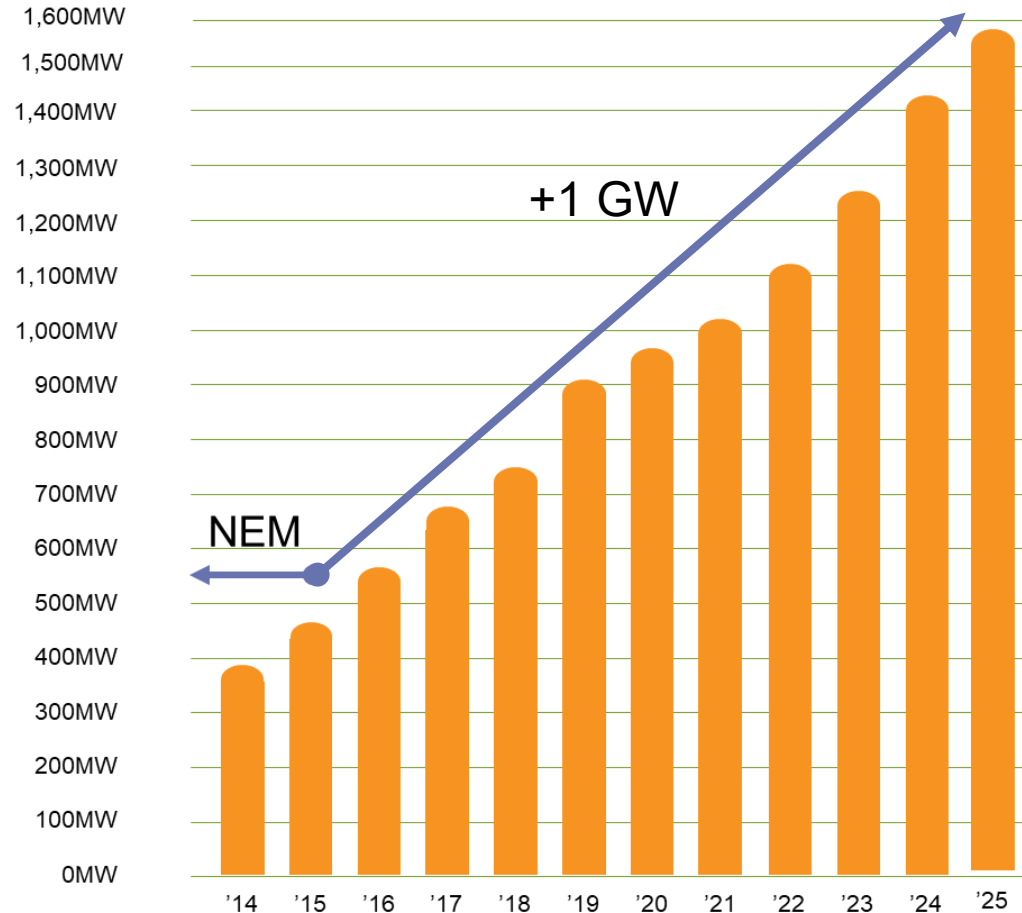


2025 RENEWABLE PORTFOLIO STANDARD (RPS)  
Percentage of power generation coming from  
renewable sources



\*2024 data

# Cumulative Solar Installations



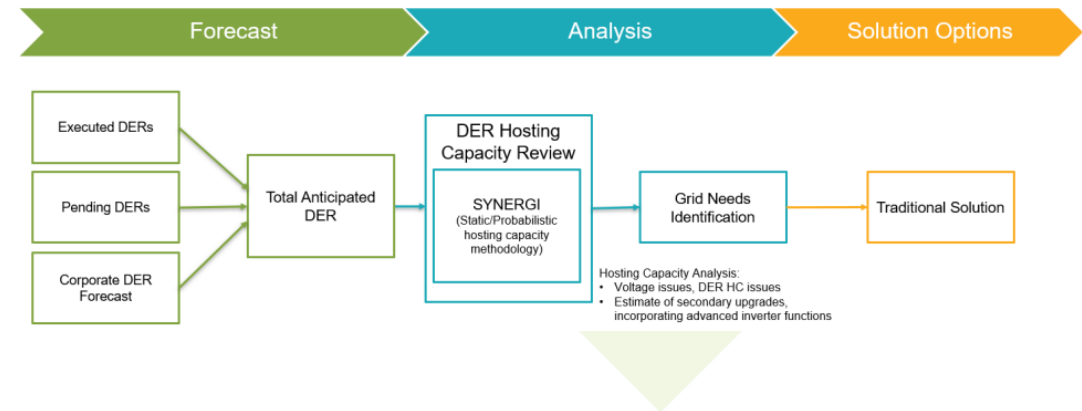
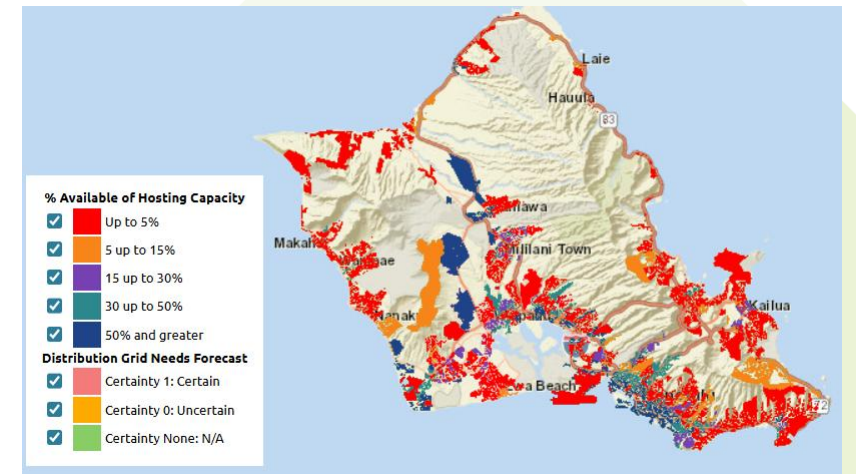
120,570  
SYSTEMS

1,567<sup>MW</sup>

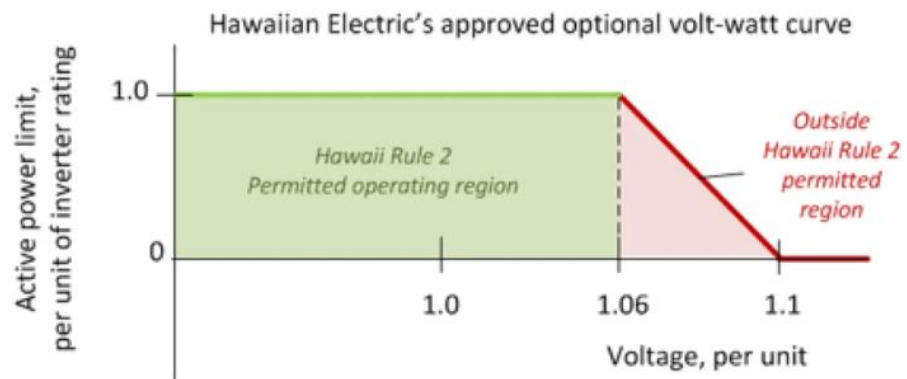
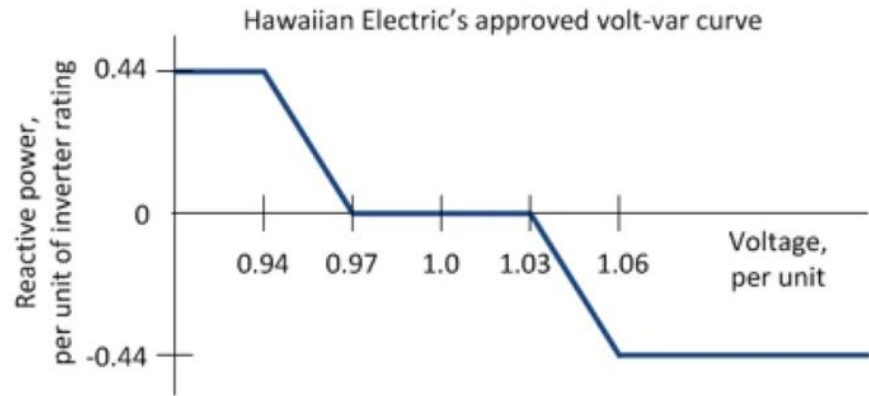
- 2001 – 2015: 487 MW Net Energy Metering
- 2015-2024: Various Programs
  - Customer Self-Supply
  - Customer Grid Supply
  - NEM Plus
  - Smart Export (no \$ between 9am-4pm)
  - Battery Bonus
  - ...and other variations
- 2024-Present: Consolidation
  - Smart DER Non-Export
  - Smart DER Export
  - BYOD Plus

# Hosting Capacity Improvements

- Due to volume of requests, needed to decrease interconnection review time
- Screening approach to reviews
  - Hosting capacity
  - Additional review when needed
- “Add” to hosting capacity with analysis
  - Updated methodology with EPRI to incorporate smart inverter functions and probabilistic approach



# 2022: AMI and volt-watt to manage voltage issues



26,669

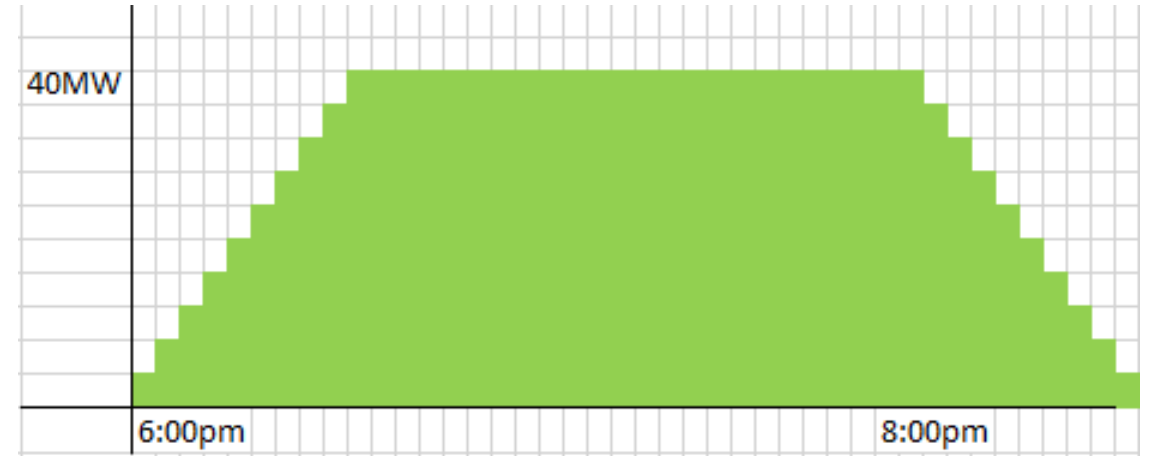
Customers AMI with Volt-Watt Enabled

\$2.44

Average Quarterly Volt-Watt Lost Compensation

- Volt-Watt function automatically curtails real power when voltage exceeds 1.06 per unit, preventing overvoltage conditions
- Q4 2025 total lost compensation ~\$900
- AMI provides 5-minute voltage data enabling distinction between system-wide versus localized issues
- Companies proactively monitor circuits with abnormally high voltages, flagging issues before customer impact thresholds

# Battery Bonus / BYOD



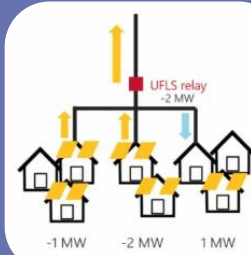
Scheduled Programs must be designed carefully to not jeopardized the grid stability.

Rather than all resource dispatching exactly at 6pm, the Battery Bonus program is designed for incremental scheduled dispatch (2MW/min).

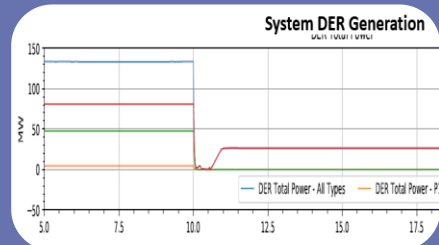
Lessons learned: Minute level dispatch very difficult to do.

# Near-term (technical) challenges to growth

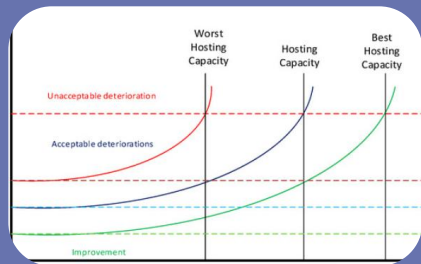
UFLS  
Effectiveness  
Degradation



Momentary  
Cessation &  
Ride-Through



Capacity at  
all levels of  
the system



Dynamic UFLS & more granular UFLS

Grid-Forming Headroom

IEEE 1547 Cat IV

Cost-Effective Monitoring & Controls

Programs to incentivize DER and load behavior

Improve Grid Visibility & Analyses

Hawai'i Powered



# Mahalo!

---

Contact Information

[ken.aramaki@hawaiianelectric.com](mailto:ken.aramaki@hawaiianelectric.com)



Hawaiian  
Electric